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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION III
841 Chestnut Building
Philadelphia, Pennsylvania 19107

DEC 18 1991

SUBJECT: Request for Funds for a Removal Action
ABEX Corporation Site
Portsmouth, Virginia

FROM: Gerald T. Heston, On-Scene Coordinator Gerald T. Heston
Western Response Section (3HW31)

TO: Edwin B. Erickson
Regional Administrator (3RA00)

THRU: Abraham Ferdas, Director
Office of Superfund (3HW02) Abraham Ferdas

I. ISSUE

A Removal Site Evaluation performed in accordance with the National Contingency Plan (NCP), 40 CFR Part 300, by the On-Scene Coordinator (OSC) at the ABEX Corporation Site in Portsmouth, Virginia, has identified a threat to human health and the environment due to the presence of high concentrations of lead in surface soils at the Site. The ABEX Corporation Site meets the criteria for initiating a Removal Action under Section 300.415 of the NCP. Removal actions will be aimed at reducing risk to the public from exposure to lead in the soil. Initially, these actions will include excavation of lead-contaminated soil at a playground and in residential yards adjacent to the ABEX Corporation facility, and sampling to evaluate the threat posed by additional lead contamination on the Site. If additional lead-contaminated soil is found above removal criteria, those soils may also be addressed to alleviate threats to human health and the environment. The OSC estimates that an initial project ceiling of $1,965,000 will be needed.

II. BACKGROUND

A. Site Description

The ABEX Corporation Site comprises a former brass and bronze foundry, a residential neighborhood to the north and south of the foundry, a playground to the west and vacant lots to the east of the foundry, all of which are contaminated with high levels of heavy metals from operation of the foundry. The ABEX Corporation Site is located in a residential area in Portsmouth, Virginia and is bounded by the Washington Park Housing Project

approximately 20 feet to the north, the Effingham Playground to the west, vacant lots to the east and a residential area to the south. The former ABEX Corporation facility is fenced at present, but access to the property is not completely restricted.

The ABEX Corporation operated as a brass and bronze foundry which fabricated parts for railroad cars for approximately 50 years until 1978 when the plant was closed. The company disposed of furnace sands in a landfill to the north of the foundry building. The foundry building is no longer owned by the ABEX Corporation. The landfill area is estimated to be approximately 175 feet by 200 feet, and is reported to be covered with soils excavated from previous construction work at the Elizabeth River. The thickness of the cover is unknown. The cover and local soils consist of fine sediments which become easily airborne. Contamination at the Site is alleged to come from the landfill operation, stack emissions from the ABEX furnaces, and air dispersion of furnace sand piled onsite during the facility's operation.

B. Site Background

Under a Consent Agreement and Order issued by the Environmental Protection Agency (EPA) on August 11, 1986, a limited cleanup was performed by the ABEX Corporation, which included the following activities: (1) excavation of lead-contaminated soil in areas of the Washington Park Development where lead contamination exceeded 500 ppm; (2) construction of asphalt pavement over the ABEX lot, the McCready lot, a portion of Brighton Street between Green and 7th Streets, and the Holland Property perimeter; (3) installation of a security fence around the ABEX and McCready lots; and (4) collection of post-excavation samples.

A Remedial Investigation/Feasibility Study (RI/FS) is currently being performed at the Site under a 1989 Consent Order between ABEX Corporation and the Virginia Department of Waste Management (VDWM). As of April 11, 1991, the EPA and the VDWM had acquired analytical data that were generated from: (1) "screen" samples collected by the ABEX Corporation's RI/FS contractor, Geo Engineering, Inc., between November 1990 and January 1991 and analyzed using the Enseco, Inc. onsite mobile laboratory and (2) split samples collected by EPA's oversight contractor, CDM Federal Programs Corporation, and analyzed through the Contract Laboratory Program. A review of these data indicates that elevated lead levels are present at, and in the vicinity of, ABEX.

On April 11, 1991, the EPA, VA/WV Remedial Section requested assistance and technical support from the EPA CERCLA Removal Enforcement Section. The request focused on the elevated lead

levels in soil at ABEX and the possible future course of action (e.g., removal, expedited and/or interim remedial) that EPA and VDWM could pursue to address such contamination.

Consequently, EPA Technical Assistance Team (TAT) members made an assessment of the situation onsite under the direction of the OSC and the Remedial Project Manager (RPM). The results of these sampling efforts show lead in soil as high as 7,000 parts per million (ppm) in residential yards, and 2,000 ppm at the Effingham Playground.

C. Quantities and Types of Substances Present

Lead, the primary contaminant of concern was detected above health based levels at the Site (see attached surface soil lead levels). Lead is listed as a probable human carcinogen in Environmental Protection Agency Health advisory publications and is considered to be a hazardous substance under Section 101 (14) of CERCLA and listed as a hazardous substance at 40 C.F.R. §302.4. Furthermore, lead is a known toxin, particularly harmful to young children, in whom it may cause retarded mental development. The lead levels (up to 7,890 ppm) detected in the residential soil adjacent to the Site represent an imminent and substantial threat to human health (see attached toxicological health consultation).

D. NPL Status

The Site is on the National Priorities List. The OSC will coordinate removal activities with the RPM to ensure consistency and that any removal action taken will contribute to the efficient performance of future anticipated remedial work.

E. State and Local Authorities' Role

Remedial planning activities at this Site are currently being conducted by the Commonwealth of Virginia. VDWM has provided the OSC with background information pertaining to the Site, and VDWM representatives are kept well informed about any action pertaining to the Site taken by EPA. The Superfund Removal and Remedial Programs have kept Portsmouth public and health officials informed of EPA activities at the Site. The OSC continues to coordinate site activities with State and local officials.

III. THREAT TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT

Section 300.415 of the NCP lists the factors to be considered in determining the appropriateness of a removal action. Following are the specific factors which are applicable to the situation at the ABEX Corporation Site:

300.415(b)(2)(i) "Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants"

Effingham Playground, which is the only playground for the nearby residents, is located within 20 feet west of the Site. From the previous sampling results and from the recent X-ray fluorescence screening analysis, it is evident that soils containing concentrations of lead above the action level are present in a number of locations on the playground, the residential yards and vacant lots. Playground activities generate a considerable amount of dust, leading to the probable inhalation and ingestion of lead-contaminated soil particles by young children. The levels of lead reported pose a direct contact threat, as well as an ingestion and an inhalation threat.

Lead is poisonous to humans by ingestion and inhalation. It is a suspected carcinogen in the lungs and kidneys. Human systemic effects by ingestion and inhalation are loss of appetite, anemia, malaise, insomnia, headache, irritability, muscle and joint pains, tremors, hallucinations, distorted perceptions, muscle weakness, gastritis, and liver changes. It also affects the human nervous system, the blood system, and the kidneys. Chronic exposure can lead to irreversible vascular sclerosis, tubular cell atrophy, interstitial fibrosis, and glomerular sclerosis. Severe toxicity can cause sterility, abortion, and neonatal mortality and morbidity.

300.415(b)(2)(iv) "High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate"

Elevated levels of lead contamination are present in the Effingham Playground. Approximately 50 percent of the playground, including the area where swings and a carousel are located, is unvegetated. Wind and playground activities will cause lead-contaminated soil particles in this area to become airborne and possibly be transported offsite.

300.415(b)(2)(vii) "The availability of other appropriate federal or state response mechanisms to respond to the release"

Due to the very high levels of lead present in the surficial soils, the Superfund Remedial Branch has asked the Removal program to take appropriate action to mitigate the immediate and uncontrolled threat to the public health and the environment in advance of remedial action. VDWM has also sought assistance and technical support from the EPA regarding this Site. The State and local authorities do not have the resources to undertake a project of this magnitude.

IV. ENDANGERMENT DETERMINATION

Actual releases of hazardous substances from this Site, if not addressed expeditiously by implementing the response action outlined in this Action Memorandum, may present an imminent and substantial endangerment to the public health and welfare and the environment.

V. PROPOSED ACTION AND COSTS

A. Proposed Actions

The actions proposed for the ABEX Corporation Site are designed to eliminate the immediate threat to the public posed by the presence of high levels of lead in soil at the Effingham Playground and yards of nearby homes, and to address the vacant lots if necessary. The proposed actions are as follows:

* Mobilize personnel and equipment to excavate the Effingham Playground and residential soil to a depth of approximately 6 to 12 inches and dispose the excavated soil offsite. It is estimated that the total volume of soil to be excavated will be approximately 4,000 cubic yards. The excavated area will be replaced with clean fill, and the area will be hydroseeded.

* Perform an extent-of-contamination survey by sampling to determine if the residential areas to the north and south of the former ABEX Foundry and the vacant lots to the east pose a threat, and address those areas as appropriate, by excavation and backfill at a maximum, or site restriction at a minimum.

At this time, the OSC believes that the project can be completed within the 12-month statutory time limit for removal actions and within the $2 million limit.

B. Estimated Costs

	Ceiling
Extramural Costs	
ERCS contractor	$1,350,000
TAT contractor	150,000
USCG Strike Team	100,000
Subtotal	$1,600,000
15% contingency	240,000
Total Extramural	$1,840,000
Intramural Costs	
Direct Costs	$ 45,000
Indirect Costs	80,000
Total Intramural	$ 125,000
ESTIMATED TOTAL PROJECT CEILING	$1,965,000

C. Contribution to Remedial Performance

All removal activities at the ABEX Corporation Site will be coordinated with the RPM to ensure overall consistency and efficiency.

D. Compliance With ARARs

The proposed removal action will comply with all applicable, or relevant and appropriate environmental and health requirements, to the extent practicable considering the exigencies of the situation.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD NO ACTION BE TAKEN OR ACTION DELAYED

If no action is taken or the action is delayed, the threat of exposure to lead-contaminated surface soil and/or airborne lead-contaminated dusts will continue to exist. The impact of lead on humans, especially children, is well documented and is a serious threat to their health.

VII. OUTSTANDING POLICY ISSUES

This action memorandum is consistent with EPA's Lead policy regarding residential and industrial sites.

VIII. ENFORCEMENT

The ~~EPA~~ Region III CERCLA Removal Enforcement Section has been provided with all background information available to pursue any and all Enforcement Actions pertaining to the ABEX Corporation Site (see attached Confidential Enforcement Memorandum).

IX. RECOMMENDATION

Because conditions at the ABEX Corporation Site meet the criteria in NCP Section 300.415 for a removal, I recommend your approval of this removal action. The project ceiling will be $1,965,000 of which $1,350,000 is for Regional Allowance Costs. You may indicate your approval or disapproval by signing below.

APPROVED: _____ **DATE:** 12/17/91

DISAPPROVED: _____ **DATE:** _____

Attachments:
1. Confidential Enforcement Memorandum
2. Regional Toxicologist Evaluation
3. Levels of Lead in Surficial Soil

TABLE I

ABEX LEAD Site
Total LEAD Concentrations:
11/90 to 1/91

GEO Sample Location ID	Concentration (Mg/Kg)	GEO Sample Location ID	Concentration (Mg/Kg)
S 1 A	1360	S 31 A	<100
S 2 A	1330	S 32 A	585
S 3 A	6100	S 33 A	<100
S 4 A	1880	S 34 A	489
S 5 A	254	S 35 A	1062
S 6 A	<100	S 36 A	<100
S 7 A	840	S 37 A	<100
S 8 A	<100	S 38 A	265
S 9 A	631	S 39 A	124
S 10 A	132	S 40 A	950
S 11 A	446	S 41 A	1439
S 12 A	123	S 42 A	<100
S 13 A	446	S 43 A	****
S 14 A	<100	S 44 A	678
S 15 A	232	S 45 A	5496
S 16 A	656	S 46 A	746
S 17 A	<100	S 47 A	5813
S 18 A	136	S 48 A	593
S 19 A	466	S 49 A	<100
S 20 A	269	S 50 A	1560
S 21 A	<100	S 51 A	736
S 22 A	108	S 52 A	359
S 23 A	584	S 53 A	<100
S 24 A	161	S 54 A	516
S 25 A	152	S 55 A	4330
S 26 A	561	S 56 A	6490
S 27 A	<100	S 57 A	218
S 28 A	300	S 58 A	314
S 29 A	<100	S 59	<100
S 30 A	461	S 60 A	<100

* Collected by GEO Engineering; Analyzed by ENSECO Mobile Laboratory Testing

TABLE I

ABEX LEAD Site
Total LEAD Concentrations:
11/90 to 1/91

GEO Sample Location ID	Concentration (Mg/Kg)	GEO Sample Location ID	Concentration (Mg/Kg)
S 61 A	102	S 93 A	823
S 62 A	4646	S 94 A	795
S 63 A	339	S 95 A	1145
S 64 A	<100	S 96 A	900
S 65 A	<100	S 97 A	766
S 66 A	1560	S 98 A	3530
S 67 A	225	S 99 A	1420
S 68 A	1020	S 100 A	229
S 69 A	440	S 101 A	<100
S 70 A	137	S 102 A	<100
S 71	<100	S 103 A	<100
S 73 A	<100	S 104 A	133
S 74 A	<100	S 105 A	<100
S 75 A	<100	S 106 A	<100
S 76 A	135	S 107 A	<100
S 77 A	<100	S 108 A	212
S 78 A	154	S 109 A	181
S 79 A	<100	S 110 A	108
S 80 A	<100	S 111 A	<100
S 81 A	<100	S 112 A	<100
S 82 A	<100	S 113 A	<100
S 83 A	3280	S 114 A	264
S 84 A	1030	S 115 A	<100
S 85 A	<100	S 116 A	<100
S 86 A	304	S 117 A	192
S 87 A	1470	S 118 A	202
S 88 A	1210	S 119 A	220
S 89 A	<100	S 120 A	222
S 90 A	<100	S 121 A	242
S 91 A	164	S 122 A	239
S 92 A	912		

* Shaded cells were not included in map of July 19,1991

* Collected by GEO Engineering; Analyzed by ENSECO Mobile Laboratory Testing

TABLE II

ABEX LEAD Site
Total LEAD Concentrations:
11/90 to 1/91

GEO Sample Location ID	Concentration (Mg/Kg)	GEO Sample Location ID	Concentration (Mg/Kg)
S 23 A	1670	S 45 A	7310
S 25 A	7640	S 46 A	843
S 26 A	512	S 47 A	7890
S 29 A	48.8	S 48 A	644
S 30 A	493	S 49 A	52.9
S 31 A	70.1	S 50 A	1820
S 32 A	668	S 51 A	880
S 33 A	88.7	S 52 A	407
S 34 A	574	S 53 A	113
S 35 A	1230	S 54 A	561
S 36 A	104	S 55 A	4630
S 37 A	55.2	S 56 A	9240
S 38 A	300	S 58 A	351
S 39 A	147	S 61 A	113
S 40 A	1070	S 62 A	4930
S 41 A	1780	S 63 A	434
S 42 A	101	S 66 A	1640
S 43 A	1660	S 67 A	264
S 44 A	767	S 68 A	1160

**Partial list of QA/QC data
provided by EPA Remedial Section

* Collected by GEO Engineering, Split with CDM & Analyzed by EPA's Contract Laboratory Program